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14. ABSTRACT
The US Navy uses the Life Fitness 95 CI Classic and the Life Fitness 95C Version 4 cycle ergometers as a cardio testing alternative to the 1.5 mile run. The cardio alternative test involves a maximum calorie burn in 12 minutes. Although both of these ergometers have been validated for calorie burn accuracy, the variability from one ergometer to the next, as well as the long term stability of the calibration of the ergometers is not known. Fifteen high use (679-4938 hours) Life Fitness 95 CI Classic and the Life Fitness 95C Version 4 cycle ergometers were assessed using a Vacumed Ergometer Calibrator. The ergometers were driven for 10 minutes at 100, 200, and 300 watts and the calories burned as displayed on the ergometer display was recorded. The indicated calories burned reported at 100, 200, and 300 watts were 71.53 ± 3.7, 129.67 ± 3.87, and 191.60 ± 4.31 Kilocalories respectively.

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Calibration Variability of 15 High Use Life Fitness Cycle Ergometers

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Abstract: The US Navy uses the Life Fitness 95 CI Classic and the Life Fitness 95C Version 4 cycle ergometers as a cardio testing alternative to the 1.5 mile run. The cardio alternative test involves a maximum calorie burn in 12 minutes. Although both of these ergometers have been validated for calorie burn accuracy, the variability from one ergometer to the next, as well as the long term stability of the calibration of the ergometers is not known. Fifteen high use (679-4938 hours) Life Fitness 95 CI Classic and the Life Fitness 95C Version 4 cycle ergometers were assessed using a Vacumed Ergometer Calibrator. The ergometers were driven for 10 minutes at 100, 200, and 300 watts and the "calories burned" as displayed on the ergometer display was recorded. The indicated "calories burned" reported at 100, 200, and 300 watts were 71.53 ± 3.7, 129.67 ± 3.87, and 191.60 ± 4.31 Kilocalories respectively.

Introduction: The U. S. Navy uses the Life Fitness 95CI Classic and the Life Fitness 95C Version 4 as a cardio alternative testing mode during the semi-annual Physical Fitness Assessment (PFA). The test consists of a 12 minute effort in which the Sailor attempts to burn as many calories as possible. Calories expended are converted to a run score, which is used to compute the PFA score. The calorie to run score conversion formula was developed by Hodgdon et. al (1). Previously the Life Fitness 95CI Classic was validated by the Naval Health Research Center (2). The validation testing data indicated that the Life Fitness ergometer was accurate enough to use for testing and that no corrective offset was necessary to correct the calories indicated on the device. The Life Fitness 95CI Classic and the Life Fitness 95C Version 4 are currently used by the Navy for this purpose with no slope, intercept, or offset correction to the calories indicated. Though proven accurate during validation testing, no data exists to demonstrate that these approved cycle ergometers retain calibration consistency over time, especially with heavy use. The present study was conducted to determine if high use cycle ergometers retained calibration consistency.

Methods: Fifteen well used (679 - 4938 hours of use) cycle ergometers (Life Fitness 95CI Classic and the Life Fitness 95C Version 4) were obtained from the cardio training facility in MacDonough Hall at the U.S. Naval Academy. This facility is used by both Midshipmen and staff and is open seven days per week. These ergometers are also used by staff for the semi-annual PFA. The cycle ergometers are not on a periodic maintenance program, but are repaired in the event of a malfunction. A Vacumed Ergometer Calibrator (VEC) (Vacumed, Ventura, CA) was used to turn the crank axle of each cycle ergometer at a 100, 200 and 300 watts, within a range of 55-70 RPMs. Prior to use, the VEC calibration was verified per the manufacturer's specifications using calibrated weights. Each cycle ergometer was connected to a VEC by using a custom crank arm adaptor. Once connected, the VEC was turned on and adjusted to turn the cycle ergometer crank axle 60 RPM. Then the Life Cycle ergometer was powered on and the resistance level setting was increased until the displayed VEC wattage (The VEC displays wattage applied to the crank axel.) was close to, but not exceeding the required wattage (100, 200 or 300). The RPMs were adjusted up or down to achieve the required wattage within a range of 55-70 RPM. If a greater RPM adjustment than this range was required, the bike resistance level was increased or decreased and the RPM again adjusted. Using this procedure, the desired wattage was obtained in all cases between 57.8 - 66.2 RPMs. Once the correct wattage and RPMs were set on the VEC, calorie expenditure, as displayed by the cycle ergometer display, was recorded every two minutes for a duration of 10 minutes at a constant wattage and RPM as driven by the VEC. Each cycle ergometer was tested at 100, then 200 and finally 300 watts for 10 minutes each. Additionally, three cycle ergometers were chosen randomly to be retested to determine test – retest repeatability.

Figure 1.0: Ergometer Calibrator Connected to Lifecycle

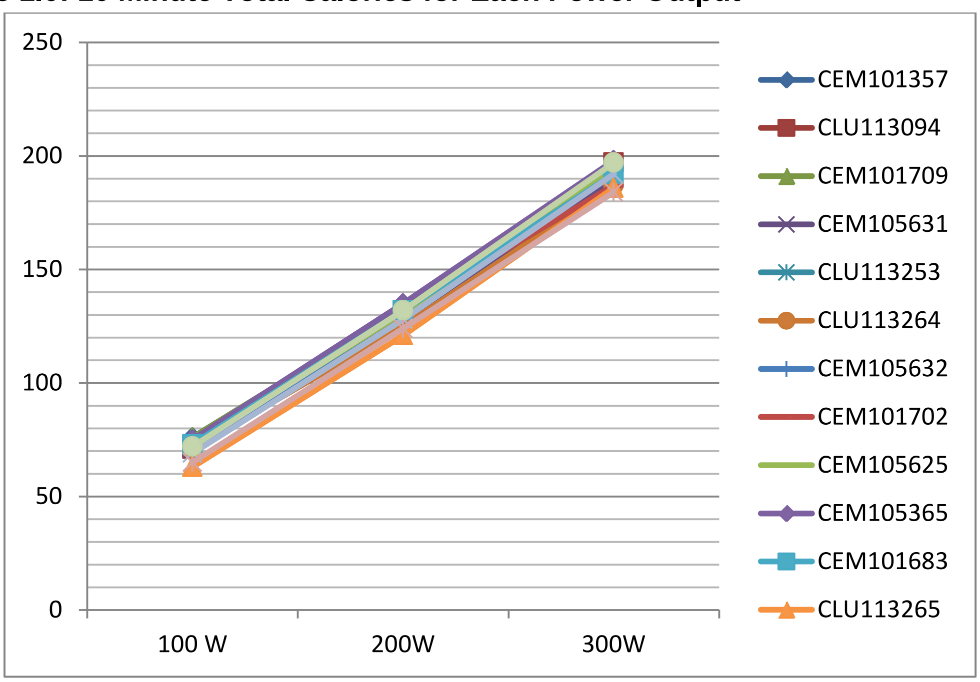
Results: Table 1.0 and Figure 1.0 shows the total calories for the 10 minute duration at each power output for all of the cycler ergometers tested.

Table 1.0: 10 Minute Total Calories for Each Power Output

Serial #	100 W	200W	300W
CEM101357	76	133	190
CLU113094	71	132	197
CEM101709	76	133	192
CEM105631	71	128	190
CLU113253	72	130	195
CLU113264	71	125	187
CEM105632	71	129	192
CEM101702	75	132	187
CEM105625	73	131	195
CEM105365	75	135	198
CEM101683	73	132	192
CLU113265	63	121	186
CLU113255	69	128	192
CLU113099	65	124	184
CLU113095	72	132	197
Mean	**71.53**	**129.67**	**191.60**
SD	**3.70**	**3.87**	**4.31**

Note: CLU = Life Fitness 95CI Classic, CEM = Life Fitness 95C Version 4

Figure 1.0: 10 Minute Total Calories for Each Power Output



The standard deviation was approximately 4 Calories across each wattage level, indicating that while there was some variability, it did not scale up with the Calorie expenditure rate. Table 2.0 summarizes the hours of use on each cycle ergometer. The highest use ergometer had 4938 hours and the lowest use had 679 hours.

Table 2.0: Cycle Ergometer Hours of Use

Bike Ser #	Hours Use
CEM101357	4938
CLU113094	781
CEM101709	2634
CEM105631	3092
CLU113253	679
CLU113264	824
CEM105632	3474
CEM101702	4657
CEM105625	3517
CEM105365	2892
CEM101683	2873
CLU113265	860
CLU113255	912
CLU113099	904
CLU113095	845
Mean	**2258.80**
SD	**1510.57**

Three of the cycle ergometers were chosen randomly for re-testing in order to determine the test-re-test repeatability of the test procedures. Table 3.0 reports the results. The largest test – retest variation was 6%.

Table 3.0: Test – Retest Repeatability

Bike Ser #	100W	200W	300W
CLU113265	63	121	186
	63	123	188
CLU113255	69	128	192
	72	131	195
CLU113099	65	124	184
	69	129	190

A regression of Calories on Watts yielded the following equation for predicting calories from average watts: Calories = 0.7204 * Watts + 13.04. The regression yielded an R^2 of .99 and a standard error for Calories of 4.83 (see Table 4.0).

Table 4.0: Regression of Calories on Watts

SUMMARY OUTPUT **Calories = Y**

Regression Statistics	
Multiple F	0.9967933
R Square	0.993596883
Adjusted I	0.993447974
Standard E	4.830484592
Observati	45

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regressio	1	155692.8	155692.8	6672.48	8.34506E-49
Residual	43	1003.344	23.33358		
Total	44	156696.2			

	Coefficients	*andard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	13.04	1.905169	6.844538	2.16E-08	9.197860911	16.88213909	9.197860911	16.88213909
X Variable	0.7204	0.008819	81.68525	8.35E-49	0.702614352	0.738185648	0.702614352	0.738185648

Discussion: To gauge the impact of the observed variability in Calories measured at each work rate, equivalent run scores were calculated. By extrapolating the 10 minute Calorie figures to 12 minutes (scaling up the 10 minute calories by 1.2), and then using the Navy formula (1) to convert 12 minute calories to a run score, Table 5 was produced. Table 5 compares the resultant variation in run scores that would have been obtained from the 12 minute Calorie numbers (a hypothetical PFA run on each of the cycle ergometers) at the tested wattage levels for a 180 pound male and a 135 pound female. The high and low scores at each work rate are in bold.

Table 5.0: Run Scores Computed from 12 Minute Calories at Each Work Rate

Male 180 Pounds				Female 135 Pounds			
Watts	**100**	**200**	**300**	**Watts**	**100**	**200**	**300**
Bike				**Bike**			
CEM101357	**14:21**	10:54	9:31	CEM101357	**14:06**	11:31	10:29
CLU113094	14:55	10:56	9:24	CLU113094	14:32	11:32	10:24
CEM101709	14:21	10:54	9:29	CEM101709	14:06	11:31	10:27
CEM105631	14:55	11:05	9:31	CEM105631	14:32	11:39	10:29
CLU113253	14:48	11:00	9:26	CLU113253	14:27	11:36	10:25
CLU113264	14:55	11:12	9:34	CLU113264	14:32	11:44	10:31
CEM105632	14:55	11:02	9:29	CEM105632	14:32	11:37	10:27
CEM101702	14:28	10:56	9:34	CEM101702	14:11	11:32	10:31
CEM105625	14:41	10:58	9:26	CEM105625	14:21	11:34	10:25
CEM105365	14:28	**10:50**	**9:23**	CEM105365	14:11	**11:28**	**10:23**
CEM101683	14:41	10:56	9:29	CEM101683	14:21	11:32	10:27
CLU113265	**16:01**	**11:21**	9:35	CLU113265	**15:21**	**11:51**	10:32
CLU113255	15:10	11:05	9:29	CLU113255	14:43	11:39	10:27
CLU113099	15:43	11:14	**9:37**	CLU113099	15:08	11:46	**10:33**
CLU113095	14:48	10:56	9:24	CLU113095	14:27	11:32	10:24
Mean	14:53	11:01	9:29	**Mean**	14:30	11:36	10:28
SD	0:28	0:08	0:04	**SD**	0:21	0:06	0:03

As mentioned earlier, the standard deviation of the 10 minute calories at each work rate does not scale up significantly with increased Calorie expenditure rate; therefore the variability of resultant run scores is greatest at lower power outputs. By comparing the high and low run scores to the grading standards in OPNAVINST 6110.1J, the scoring impact of this variability can be determined for hypothetical Sailors. For a male 20-24, the variability at 100, 200 and 300 watts would not have made any difference in overall score (failure, good, and outstanding respectively). For a female 20-24, the variability would not have changed the score for the 100 watt work rate (good), would have resulted in two possible scores at 200 watts (outstanding or excellent) and would not have made a difference at 300 watts (outstanding). Although these calculations show that a 20-24 year old female testing at 200 watts would have obtained a different PFA score category if tested on different bikes according to our data, any amount of variability, no matter how small, could result in a different score category on the margins. This possibility cannot be eliminated as long as there is any measureable variability from one ergometer to another. At the work rate with the highest relative variability (100 watts), the standard deviation represented approximately 5% of the mean, and only approximately 3% and 2% of the mean for 200 and 300 watts.

How are Calories Computed on the Life Fitness Cycle Ergometers?

Calories are computed using a company proprietary formula. The calories indicated on the cycle ergometers was significantly different than what would be predicted by the American

College of Sports Medicine Metabolic Calculations (3). However, the ACSM calculation is not intended for work rates over 200 watts. The following equations were used to convert work rate to Calories, producing Table 6.0.

L Oxygen = (10.8 * Watts)/1000

Calories = L Oxygen * 5

Calories * 10 = Calories burned in 10 minutes

Table 6.0: ACSM Predicted 10 Minute Calories

Watts	10 Min Indicated Kcal	Predicted VO2 (L/Min)	ACSM Predicted 10 Min Calories
100	71.53	1.087	54.35
200	129.67	2.167	108.35
300	191.60	3.247	162.35

Another method of estimating calories burned from average watts is by applying the conversion 1 watt =0.86 Calories per hour and correcting for gross efficiency. GE is defined as work rate / energy expended * 100. GE is expressed as a percent. Table 7 was produced by assuming 19.8% gross efficiency (GE) (4).

Table 7.0: 20% Efficiency Predicted Calories

Watts	Indicated Kcal	19.8% Efficiency
100	71.53	72.31
200	129.67	144.61
300	191.60	216.92

The figures are close for 100 watts but diverge significantly at 200 and 300 watts. Mosley and Jukendrup (4) found efficiency to vary with work rate, with greater efficiency at higher work rates. Mosley and Jukendrup argue that efficiency should be expected to be higher at higher intensities because the proportion of the total energy expenditure necessary to sustain homeostasis is lower at higher intensities. McDaniel et. al found that cycling efficiency increased with pedal speed. Pedal speed can be increased by increasing crank length. Therefore, bike specific crank length can impact efficiency. Coyle (6) reported differences in efficiency relating to differences in muscle fiber types. Because of these factors, both population specific variables, as well as cycle ergometer specific variables can impact there cost of cycling at a given work rate. If the Calories are recalculated using 20% efficiency for 100 watts and 22% efficiency for 200 and 300 watts, the predicted Calories are much closer to what was indicated on the cycle ergometer display (see Table 8.0). These values may be unique to the Life Cycle ergometer design, as well as the Navy population used to validate the Life Fitness 95CI Classic because both ergometer specific and population specific factors can influence the metabolic cost of cycling.

Table 8.0: Predicted Calories Using 20% and 22% Efficiency

Watts	Indicated Kcal	20% and 22% Efficiency (100W and 200W,300W respectively)
100	71.53	71.58
200	129.67	130.15
300	191.60	195.23

Validating Future Cycle Ergometers Using Average Watts

The Navy considers a bicycle ergometer to be acceptable for use as a PRT cardio testing alternative if:

> "A stationary cycle [elliptical trainer] will be deemed suitably accurate if the 95% confidence interval for the slope of the regression of measured (metabolic cart) calories versus indicated calories (device display) includes the value 1."

The Navy then employs an offset correction to account for variation due to the intercept. The Life Fitness 95CI Classic was the only cycle ergometer tested by the Navy that required no offset correction in addition to meeting the criteria above. As a result, calories indicated on the device were considered equivalent to calories measured using a metabolic cart. As a result of this documented accuracy, the Life Fitness 95CI Classic can be used as a validation benchmark to test other ergometers. Due to the statistically significant correlation, high R^2, and low standard error of the estimate for the regression of Calories on Watts for the Life Fitness cycle ergometers, the regression equation (Calories = 0.7204 * Watts + 13.04) can be used to compute Calories from average watts. With that information, it would be possible to conduct future cycle ergometer validations using only the ergometer calibrator and no human subjects. In this case, the ergometer calibrator could be used to drive the cycle ergometer at several workloads for a given period of time (i.e., 100, 150, 200. 250, and 300 watts for 10 minutes each). Then instead of comparing calories indicated on the device to calories measured using human subjects and a metabolic cart, calories indicated would be compared to calories computed using the regression equation above. The same acceptance/rejection criteria mentioned above could then be used to validate the ergometer. This would save considerable time and cost and would provide essentially an equivalent result.

The weakness in this approach is that it does not consider ergometer specific design differences that could affect cycling efficiency (i.e., crank arm length). However, 95% of cycling metabolic cost is determined by power output alone (6), so ergometer design factors are likely to contribute little to energy cost.

Constructing a Bicycle PRT Using Average Watts

It is also possible to construct a bicycle PRT based on average watts, rather than calories burned in 12 minutes. Based on the regression equation (Calories = 0.7204 * Watts + 13.04) Calories burned in 12 minutes can be computed from average wattage. Table 9.0 shows the 12 minute calorie equivalent for each average wattage value.

Table 9.0: Calculating Average Calories from Average Watts

12 Min Average Watts	Calculated 12 Minute Calories
50	49
60	56
70	63
80	71
90	78
100	85
110	92
120	99
130	107
140	114
150	121
160	128
170	136
180	143
190	150
200	157
210	164
220	172
230	179
240	186
250	193
260	200
270	208
280	215
290	222
300	229
310	236
320	244
330	251
340	258
350	265
360	272

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Raw Data

	RPM	60		60.7		61.4	
	Level	12		17		20	
CEM101357	**min**	**100w**	**Kcal/min**	**200w**	**Kcal/min**	**300w**	**Kcal/min**
Hours on Bike	0	10		117		270	
4938	2	25	7.5	144	13.5	308	19
	4	40	7.5	170	13	346	19
	6	56	8	197	13.5	384	19
	8	71	7.5	223	13	422	19
	10	86	7.5	250	13.5	460	19
	Total	76		133		190	
	RPM	60		60.2		61	
	Level	11		17		21	
CLU113094	**min**	**100w**	**Kcal/min**	**200w**	**Kcal/min**	**300w**	**Kcal/min**
Hours on Bike	0	6		92		243	
781	2	20	7	118	13	282	19.5
	4	34	7	144	13	322	20
	6	49	7.5	171	13.5	361	19.5
	8	63	7	198	13.5	400	19.5
	10	77	7	224	13	440	20
	Total	71		132		197	
	RPM	60		60.7		62	
	Level	12		17		20	
CEM101709	**min**	**100w**	**Kcal/min**	**200w**	**Kcal/min**	**300w**	**Kcal/min**
Hours on Bike	0	13		100		255	
2634	2	28	7.5	127	13.5	293	19
	4	43	7.5	153	13	332	19.5
	6	55	6	180	13.5	370	19
	8	73	9	207	13.5	409	19.5
	10	89	8	233	13	447	19
	Total	76		133		192	

	RPM	60		59.9		62	
	Level	11		17		20	
CEM105631	**min**	**100w**	**Kcal/min**	**200w**	**Kcal/min**	**300w**	**Kcal/min**
Hours on Bike	0	15		110		270	
3092	2	29	7	135	12.5	308	19
	4	43	7	161	13	346	19
	6	57	7	187	13	384	19
	8	71	7	212	12.5	422	19
	10	86	7.5	238	13	460	19
	Total	71		128		190	
	RPM	61.6		59.9		62	
	Level	11		17		20	
CLU113253	**min**	**100w**	**Kcal/min**	**200w**	**Kcal/min**	**300w**	**Kcal/min**
Hours on Bike	0	30		125		300	
679	2	44	7	150	12.5	339	19.5
	4	58	7	176	13	378	19.5
	6	73	7.5	203	13.5	417	19.5
	8	88	7.5	229	13	456	19.5
	10	102	7	255	13	495	19.5
	Total	72		130		195	
	RPM	59.9		66.2		60.3	
	Level	11		16		20	
CLU113264	**min**	**100w**	**Kcal/min**	**200w**	**Kcal/min**	**300w**	**Kcal/min**
Hours on Bike	0	49		175		316	
824	2	63	7	198	11.5	354	19
	4	77	7	224	13	391	18.5
	6	91	7	249	12.5	428	18.5
	8	105	7	274	12.5	465	18.5
	10	120	7.5	300	13	503	19
	Total	71		125		187	

	RPM	59.7		58.3		60.6	
	Level	11		17		20	
CEM105632	**min**	**100w**	**Kcal/min**	**200w**	**Kcal/min**	**300w**	**Kcal/min**
Hours on Bike	0	45		138		285	
3474	2	59	7	163	12.5	323	19
	4	73	7	189	13	361	19
	6	87	7	215	13	400	19.5
	8	102	7.5	141	-37	438	19
	10	116	7	267	63	477	19.5
	Total	71		129		192	

	RPM	63.2		59.6		60	
	Level	11		17		20	
CEM101702	**min**	**100w**	**Kcal/min**	**200w**	**Kcal/min**	**300w**	**Kcal/min**
Hours on Bike	0	14		100		250	
4657	2	29	7.5	126	13	287	18.5
	4	44	7.5	153	13.5	325	19
	6	59	7.5	179	13	362	18.5
	8	74	7.5	205	13	399	18.5
	10	89	7.5	232	13.5	437	19
	Total	75		132		187	

	RPM	61.5		59.6		61.7	
	Level	11		17		20	
CEM105625	**min**	**100w**	**Kcal/min**	**200w**	**Kcal/min**	**300w**	**Kcal/min**
Hours on Bike	0	20		115		275	
3517	2	34	7	141	13	314	19.5
	4	49	7.5	167	13	352	19
	6	63	7	195	14	391	19.5
	8	78	7.5	220	12.5	430	19.5
	10	93	7.5	246	13	470	20
	Total	73		131		195	

	RPM	63.3		59.8		61.9	
	Level	11		17		20	
CEM105625	**min**	**100w**	**Kcal/min**	**200w**	**Kcal/min**	**300w**	**Kcal/min**
Hours on Bike	0	26		120		270	
3517	2	40	7	146	13	309	19.5
	4	55	7.5	172	13	348	19.5
	6	70	7.5	199	13.5	387	19.5
	8	85	7.5	225	13	426	19.5
	10	100	7.5	252	13.5	465	19.5
	Total	74		132		195	
	RPM	63.9		60.1		62.6	
	Level	11		17		20	
CEM105365	**min**	**100w**	**Kcal/min**	**200w**	**Kcal/min**	**300w**	**Kcal/min**
Hours on Bike	0	30		122		300	
2892	2	45	7.5	149	13.5	339	19.5
	4	60	7.5	176	13.5	379	20
	6	75	7.5	203	13.5	419	20
	8	90	7.5	230	13.5	458	19.5
	10	105	7.5	257	13.5	498	20
	Total	75		135		198	
	RPM	61.8		60.1		61.4	
	Level	11		17		20	
CEM101683	**min**	**100w**	**Kcal/min**	**200w**	**Kcal/min**	**300w**	**Kcal/min**
Hours on Bike	0	25		111		260	
2873	2	39	7	138	13.5	298	19
	4	54	7.5	164	13	338	20
	6	69	7.5	190	13	375	18.5
	8	83	7	217	13.5	413	19
	10	98	7.5	243	13	452	19.5
	Total	73		132		192	

CLU113265	**RPM**	60		62.5		60.1	
hours on Bike	**Level**	9		16		20	
860	**min**	**100w**	**Kcal/min**	**200w**	**Kcal/min**	**300w**	**Kcal/min**
	0	10		90		281	
	2	23	6.5	114	12	318	18.5
	4	35	6	138	12	355	18.5
	6	48	6.5	162	12	392	18.5
	8	60	6	187	12.5	429	18.5
	10	73	6.5	211	12	467	19
	Total	63		121		186	
CLU113255	**RPM**	63.8		59.2		60.8	
Hours on Bike	**Level**	10		17		20	
912	**min**	**100w**	**Kcal/min**	**200w**	**Kcal/min**	**300w**	**Kcal/min**
	0	38		152		305	
	2	51	6.5	177	12.5	343	19
	4	65	7	203	13	387	22
	6	79	7	229	13	420	16.5
	8	93	7	254	12.5	458	19
	10	107	7	280	13	497	19.5
	Total	69		128		192	
CLU113099	**RPM**	60		57.8		60	
Hours on Bike	**Level**	10		17		20	
904	**min**	**100w**	**Kcal/min**	**200w**	**Kcal/min**	**300w**	**Kcal/min**
	0	15		132		275	
	2	28	6.5	157	12.5	312	18.5
	4	41	6.5	181	12	349	18.5
	6	54	6.5	206	12.5	385	18
	8	67	6.5	231	12.5	422	18.5
	10	80	6.5	256	12.5	459	18.5
	Total	65		124		184	

CLU113095	**RPM**	60		59.8		59.7	
Hours on Bike	**Level**	9		17		22	
845	**min**	**100w**	**Kcal/min**	**200w**	**Kcal/min**	**300w**	**Kcal/min**
	0	15		115		285	
	2	29	7	141	13	324	19.5
	4	43	7	167	13	363	19.5
	6	58	7.5	193	13	402	19.5
	8	72	7	220	13.5	442	20
	10	87	7.5	247	13.5	482	20
	Total	72		132		197	
CLU113265	**RPM**	60		64		60.2	
Hours on Bike	**Level**	9		16		20	
860	**min**	**100w**	**Kcal/min**	**200w**	**Kcal/min**	**300w**	**Kcal/min**
	0	5		11		14	
	2	17	6	35	12	51	18.5
	4	30	6.5	59	12	88	18.5
	6	42	6	84	12.5	126	19
	8	55	6.5	109	12.5	164	19
	10	68	6.5	134	12.5	202	19
	Total	63		123		188	
CLU13255	**RPM**	60		59.5		61.9	
Hours on Bike	**Level**	11		17		20	
912	**min**	**100w**	**Kcal/min**	**200w**	**Kcal/min**	**300w**	**Kcal/min**
	0	7		14		166	
	2	21	7	39	12.5	205	19.5
	4	36	7.5	66	13.5	244	19.5
	6	50	7	92	13	283	19.5
	8	64	7	118	13	322	19.5
	10	79	7.5	145	13.5	361	19.5
	Total	72		131		195	

CLU113099	RPM	64		58.1		60	
Hours on Bike	Level	10		17		21	
904	**min**	**100w**	**Kcal/min**	**200w**	**Kcal/min**	**300w**	**Kcal/min**
	0	8		17		30	
	2	21	6.5	42	12.5	68	19
	4	35	7	68	13	106	19
	6	49	7	94	13	144	19
	8	63	7	120	13	182	19
	10	77	7	146	13	220	19
	Total	69		129		190	